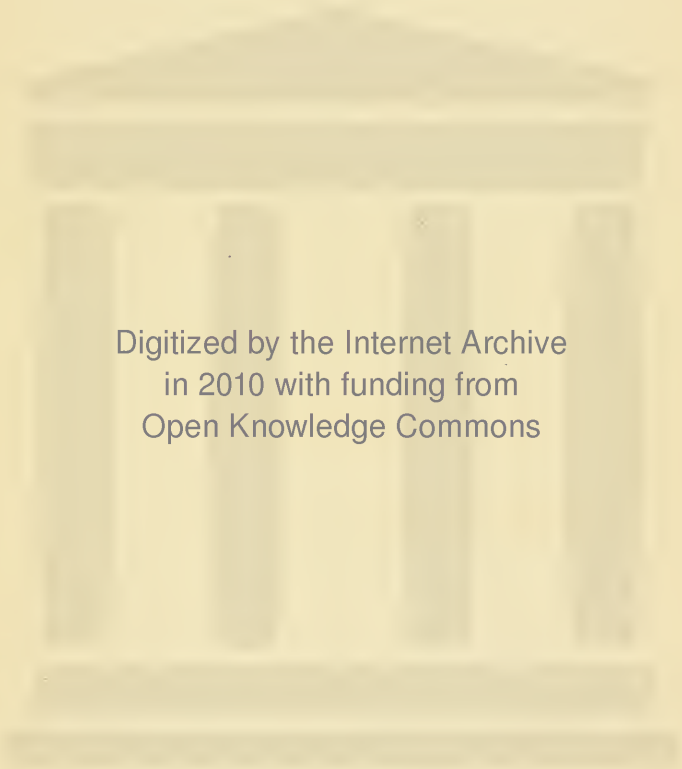
The Role of the Teeth and Tonsils in The Causation of Arthritis

HAWKINS



FISKE FUND PRIZE ESSAY. NO. LVII.

THE ROLE OF THE TEETH AND TONSILS IN THE CAUSATION OF ARTHRITIS.

MOTTO:
DUM SPIRO, SPERO; CUM NOTIS VARIORUM.

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THE Trustees of the Fiske Fund, at the annual meeting of the Rhode Island Medical Society, held at Providence, May 31, 1917, announced that they had awarded a premium of two hundred dollars to an essay on "The Role of the Teeth and Tonsils in the Causation of Arthritis," bearing the motto:

"Dum spiro, spero; cum Notis variorum."

The author was found to be Dr. Joseph F. Hawkins, of Providence, R. I.

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The Role of the Teeth and Tonsils in the Causation of Arthritis.

That the absorption of chemical toxins from micro-organisms can and does produce serious pathological lesions in the organs, glands and joints of the body is an established and accepted fact by the medical man who is abreast of the latest research in experimental medicine.

To have an acute tonsillitis the initial event of an acute rheumatic attack is so common that it is now generally accepted as a clinical fact, and, upon minute history taking, one will find it in the majority of cases. As far back as 1798 Eyerlen[1] noted that not only in primary attacks of rheumatic fever, but in subsequent attacks, there was a history of tonsillitis preceding. Other observers have noted this fact and recorded their opinions:[3] that they found sore throats as a precedent in from 1.5% to 80% of the cases. It is evident to every clinical observer that, many times, a constant forerunner of almost any systemic disturbance is of so slight importance that it may be overlooked or not mentioned by the patient unless brought out by the questioning of the physician; while, on the other hand, there might be quite serious disease in or about the teeth and tonsils, with little or no local manifestation. Tonsils are

removed in children usually on account of their size. They are obstructive mechanically. In adults the tonsils may be small, even to being completely submerged out of the line of vision of the observer, yet be an infected, toxin-producing, chronic poisoning source of various vague pains, and would never be removed for the same reason as in childhood, but when removed, have proved to have been the grave menace just mentioned. Recent writers, employing better methods of examining the teeth and tonsils, are finding many more cases of arthritis when these organs are diseased than formerly. Goadby,[4] and others, report cases of polyarthritis originating in pus pockets about the teeth, and all are apparently agreed, at this time, that the most frequent port of entry is there or through the tonsils. As far back as 1904 Gürich,[5] who, by the way, believed that joint symptoms, endocarditis, pericarditis, pneumonia, myocarditis, pleurisy, and all the other complications of an acute rheumatic fever, were all the result of metastases from a primary focus elsewhere in the body, was the first to attempt systemic treatment of acute rheumatic fever through the tonsils. He reports 12 cases of tonsillitis and four of peritonsillar abscess preceding the appearance of the acute arthritis, and 14 cases where plugs were seen in the crypts. A year later he reported[6] 140 cases of acute and chronic arthritis treated by tonsillar therapy, with 98 cures and 23 cases unaffected by the treatment, which consisted

of making parallel incisions through the tonsils and curetting the tonsillar tissue. Enucleation was not done at that time. Four years later Rosenheim[7] reported 10 cases of acute articular rheumatism treated by tonsillectomy and he was probably the first to enucleate the tonsils in acute rheumatic fever. One year later Hess[8] stated he thought acute follicular, phlegmonous, catarrhal tonsillitis or quinsy ushered in attacks of arthritis, and emphasized the importance of the tonsils in the etiology of the disease, but did not resort to surgical treatment of the tonsils. One year later still, 1910, Schichold[9] reported 70 cases, and called attention to other sources than the tonsil, and particularly mentioned the sinuses and the teeth.

Among the latest organisms to be studied in relation to arthritis is a small gram negative diplococcus, first observed by Connellan in 1914, while examining extracted teeth for Hasbrouck and Palmer, and now known as the Connellan-King diplococcus. He was searching for Endamoeba buccalis, and on examining abscesses situated upon the roots of many of the teeth found the Streptococcus viridans, and Streptococcus hemolyticus; also a gram negative diplococcus which he had never seen before, nor could he find anything in the literature calling attention to this organism. King made cultures from other parts of the mouth and throat, and the new organism was found in the crypts of the tonsils and around the teeth. It is a typical bean-shaped, gram negative diplococcus,

slightly smaller than the gonococcus when it has attained its maximum growth on its best growing medium, which has been found to be human blood agar with a little veal serum added. It has a characteristic appearance on the medium, the colony being a light dull yellowish brown with a rounded contour, about the size of staphylococcus albus, growing best at a temperature of 39°-40° C.

Dunham, Van Lingelshein, Elser and others have reported several gram negative organisms found in the mouth and in other parts of the body, but this organism does not compare with them and *has never been found outside the mouth and throat*, after over three years' searching investigation. It is necessary, in preparing the medium, to use the titration method, and the acidity must be 0.2% or less.

With the Hiss sugar serums no reaction occurred except coagulation of albumen, showing it is not a gas producer, and thus accounting for the absence of pain in the teeth, where it was found in the apical abscesses.

Cultures have been made from the ear, nose and accessory sinuses, but all have been negative for this organism. When found it has been in a tonsillar crypt, or some sinus in the tonsillar fossæ after the tonsils have been removed, or around the roots of teeth; partially anærobic chambers. It is not pyogenic, but is a powerful toxin producer; causes local infection, and is non-infectious for the general blood stream.

Many arthritic or so-called rheumatic joints in which this organism was suspected to be the cause, were aspirated: blood cultures have been made from patients in whom it was found and all have been negative for the organism. A similar condition is met with in the Tetanus and Klebs-Loeffler bacilli. It grows best in the presence of moisture. Clinically, the throats in which it is found are also moist and have other characteristic appearances. The mucosa is darker than normal, of a purplish, unhealthy hue, and the tonsils are usually rather small and submerged, with a brownish yellow serum exuding from their crypts. While the subject of the treatment is not under consideration here, if we are to prove our case and make good the claim that arthritis is produced, in many instances at least, by a focal infection from the teeth and tonsils and would be and are relieved or cured by the elimination of that focal infection, it must be shown that cases of arthritis are relieved or cured by the removal of infected tonsils and teeth. This has been done by many accurate observers. These have been freely quoted throughout this essay and the author will personally reminisce upon one. Dozens could have been quoted as easily. Not from psychic females open to suggestion and relieved by the same, but by strong men and innocent children who knew not the meaning of the word psychology. They have received no suggestion. They have received relief.

It has happened that the removal of infected tonsils and teeth has been followed also by very seri-

ous complications due to the absorption of chemical toxins, but the contention that this diplococcus was responsible in these cases is strengthened by the immediate improvement of the patient upon receiving an autogenous vaccine of the organism.

In 1916, in this country, Morris[10] reported 12 cases with very complete history records showing the condition before, during and after the operation. In the tonsillar cases the association of pyorrhœa is noticeable. The twelfth case was not operated upon, probably not because the tonsils were small, but because the history relates ten attacks of gonorrhœa. He is a strong believer in the teeth and tonsils as factors in causing arthritis, and has operated upon many cases during the attack. He says that while no general conclusions may be drawn from so few cases, it is encouraging to note that the fever subsided promptly after the operation in so many of the cases. In Case 2 streptococcus viridans was isolated from the blood on two different occasions, and within three days after tonsillectomy the patient's temperature became normal and remained so. He thinks in this case the portal of entry was through the tonsils, and concludes as follows: "In conclusion, it seems to the writer advisable, in patients suffering with acute rheumatic fever, in whom evidence of tonsillar infection, acute or chronic, can be obtained, to remove the tonsils as soon as the joint pains can be controlled, provided the main conditions, as outlined in the body of the paper, can be fulfilled.

Further experience alone can determine whether the so-called complications and recurrences can be prevented in this manner."

It is but a short time ago when almost every ailment of the human body that could possibly be ascribed to an infective origin, was attributed to disease of the teeth or tonsils. This theory, like all other new proposals or discoveries in medicine, or, for that matter, in any field of endeavor and human activity, was obliged to pass through the usual stages of reaction characterized by incredulity, popularity, acceptance and abuse, and hold its place for a while, only to find the pendulum swing to the other extreme. This latter has happened, and we are now fortunately traveling the middle road, acknowledging many cases of arthritis to be due to focal infection through the teeth and tonsils, and also assenting that many are of unknown origin. One must also agree with Irons,[11] that alveolar abscess and arthritis may be coincidental, or that there may be other sources of infection than the teeth in the case of arthritis, if we are only able to find them. From an examination of an unselected group of 329 patients in Cook County hospitals, who were studied and the incidence of all discoverable infectious processes determined and tabulated, it was found that 76% of the arthritic group had alveolar abscesses. Other diseases, including pneumonias, respiratory, gastro-intestinal, only 23%, or less than one third of the percentage in the arthritic group. Abnor-

malities in the tonsils were present in 45% of the arthritic group, but only 24% in the cardio-vascular group, and in 19% of the remainder. Irons says: "All arthritis or other metastatic and systemic disease is not due to alveolar abscess or to tonsillar infection, of course, but the preponderance of such lesions in this group suggests that these infections may play an important part in the production of chronic arthritis and similar ailments. . . . In the Arthritic group therapeutic measures directed to the removal of infectious processes have been followed by gratifying results, even in rather unfavorable material. Our readmissions for recurrences of arthritis—which in former years were frequent, some patients returning as many as four times in a season—have been relatively fewer, and usually of patients who for some reason or other could not be submitted to proper surgical attention."

King[12] reports among his tentative conclusions drawn from 100 cases: "Every case of septic arthritis, commonly called rheumatism, is caused by a focus of infection somewhere in the body. It may be found in the tonsils . . . or in and around the the teeth. . . . The most frequent focus is found in the mouth, and tonsils, on account of their crypts, harbor the focus more frequently than any other gland or organ. . . . The infection may become latent and produce serious trouble weeks or months later, at a point far removed from its original site."

White and Wright,[13] reporting 56 cases of varied infections met with while working upon a treatment for Pyorrhea Alveolaris, say: "The high percentage of arthritis cases in this series is due to the fact that these men first reported for treatment of so-called rheumatism, and the pyorrhea was detected when search was being made for a local focus of infection."

Murray,[14] reporting on a study of 848 cases of tonsillectomies, says he has constantly observed that where a tonsil is a focal infection and has been removed, the patient's power of resistance improves, and often remote affections like arthritis will disappear.

While Rosenow, Klotz, Poynton, Payne and many others have worked with the Streptococcus in its invasion of tissues and organs and have demonstrated through animal experimentation that they can produce the same organism in the same anatomical position in the animal as in the human from whom it came, they have worked without particular reference to the dental avenues of infection, and it was not until the work of Goadby[15] that particular reference to the tooth avenue of infection received systematic or detailed study in the English language. From 1910 to 1912 through a series of studies he was able to produce experimentally arthritis in rabbits. Then, by the elimination of the primary foci and the use of vaccines to supplement the elimination, to cure the joint conditions. Hartzell, in a paper upon the

dental path of infection says, "If there be anything of marked value in this paper which may be of future use, it will be in the fact that it offers definite and positive proof that the so-called dental path of infection, hitherto little appreciated, is shown to be important, and that organisms taken from the dental path have produced in animals almost all of the same forms of lesions hitherto described."

That either the teeth or the tonsils, or both, may be the source of infection in arthritis is well shown in a case operated upon over a year ago by the writer. The patient was a practicing physician, aged 48, who had been suffering from vague pains in various parts of his body for many months. Pains in the back of his neck he attributed to currents of air from the top of his auto windshield; pain in the back of his legs and under the knees to an old phlebitis (that had not bothered him for years) following typhoid fever; pains in his arms and shoulders to golf, and so *ad infinitum*, until one day it was brought home to him in some manner, it matters not how, that an existing pyorrhea alveolaris might be the source of his trouble. A dentist was forthwith consulted and the tartar scraped from off the roots of his teeth; the pockets injected with emetin and alcresta tablets ingested almost *ad lib.* and the teeth scrubbed with a solution of ipecac. There was some slight improvement noted, but not enough to satisfy him, and he then bethought him of his tonsils, and having set his mind upon them, nothing would satisfy him

until they were removed, and as he had employed me many times to enucleate tonsils from the throats of his patients and liked the style of work, would have no one else remove his own. As he was a bleeder, of a family of bleeders, it occurred to me to suggest he take his tonsils somewhere else. He persistently refused to do this, and when he was unsuccessful in his pleadings, he solicited and secured the aid of his wife, and I succumbed to the combined battery. Let us pass over the operation. I am always glad to do so. It nearly turned me prematurely gray. The interest in this essay lies in the result. Sufficient time has now elapsed to judge the result. He considers himself a normal, healthy man. Pains have gone and he cannot even produce them now as formerly, that is, by crossing one leg over the other and resting one knee on the other he would at once produce a pain in the hip of the uppermost leg. In fact, to get the leg upon the other knee he was usually obliged to assist with the opposite hand. He now crosses his knees and lets them stay so indefinitely. No cultures were made from the tonsils (the hæmorrhage took all bacteriology from our minds), but they were odorous, with a thick, cheesy like excretion oozing from every crypt as the snare compressed the tissue.

This same condition has many times been noted by the writer when enucleating tonsils for the relief of chorea, 100% of which enucleations have been successful up to date, by the

way, in stopping the choreic movements. Some cases will not be benefited in the least, without a doubt; but they have not appeared yet. One would be brave indeed to state that every case of chorea was or could be cured by tonsillectomy. No such claim is being made here. What is claimed is this: The cases of chorea operated upon by the writer were referred to him by men who believed, in that special case, an infection through a tonsil to be the cause of the chorea. Or they were cases found by me in my work and believed, as did the other men, to be cases that would be benefited, as far as their chorea was concerned, or at least their general health would be improved, by removal of the tonsils as the most likely causative factor. The results stated above have confirmed this opinion most convincingly. All cases of chorea are not of focal infective origin in all probability. The claim that they are, is not made. The claim is made, and proven, to the writer's satisfaction, that the cases that appear to come from tonsil infections, are diagnosed as such, and are operated upon for relief from that condition, have given results that would satisfy the most exacting.

The association between chorea and the great rheumatic group need not be gone into here, as it would be quite outside the title of the essay. Sufficient it is to draw attention to the fact and to the strong statement of Billings,[17] who makes no modification, even, when he says, "Rheumatic fever and endocarditis are unquestionably the result of focal

infection of the mouth and throat." And again, "Probably the frequent relation of pyorrhœa to rheumatic fever . . . has not been given the etiological importance it deserves." Many authorities do not agree to this theory, but they are greatly outnumbered when one compares them with the array quoted by Billings, 57 in number, in the bibliography at the end of the volume, or by Dillingham,[18] with 41 references at the end of his article. It is indeed strange that these same authorities are, almost to a man, the very ones who accept, recognize and acknowledge gonorrheal arthritis to be of urethral gonorrheal origin. Among these dissenters may be mentioned Rolly,[19] who found blood sterile in a large number of cases, even when taken at the height of the febrile stage. He does not claim all others are wrong in their contention for bacterial infection in acute rheumatic cases previously reported, but questions if mixed infections might not be responsible for the positive findings. He examined the blood rather than the contents of the tonsils, because he claims the presence of bacteria on the tonsils, and not in the interior of the body, is no evidence that these bacteria are responsible for the articular rheumatism. Yet from his own figures, if we take the cases of tonsillitis, sore throat, pain in the throat, suppurating tonsils, tonsils found red and enlarged, or both, tonsils with plugs visible, and his so-called coated tonsils, and add them all together we get an even 500 cases in his 1450 patients ex-

amined. Add to the 238 where he says other parts of the throat were red and swollen, or both, and it leaves such a large percentage of actual throat cases, even if he insists throat cases are not necessarily tonsil cases, that one hesitates to take his objections seriously. And Rolly's argument that he did not find the organisms in the blood in his cases does not hold, because it has been acknowledged by observers before and stated by Billings, that "doubt of etiologic relation to acute rheumatism also arose from the fact that it was not usually found by cultured methods in the joint exudate and circulating blood of patients."

Dick[20] reports two cases of arthritis due to a Friedlander Bacillus (Bacillus Mucosus). Repeated cultures from the throats of which (yielding colonies of the bacillus isolated in pure culture) produced arthritis experimentally in all three rabbits which were inoculated intravenously.

Crowe et al.[21] reports on a series of 1000 cases of tonsillectomies, wherein a histologic examination of the tonsils and adenoids removed at operation was made in every case. Ten per cent of these cases had an infective type of arthritis. In the first 31 cases, where the author was able to follow up the cases, 24 had normal joints. Four are classified as improved, because the patients are now able to walk without pain, two are not improved, and one is worse. All classes improved, except the old chronic ankylosed cases, which he classes as Rheumatoid Arthritis, and in which he found only two

benefited and five are much worse. He says removal of the tonsils and adenoids in cases of rheumatic fever eliminates one of the portals of infection. He says he believes this removal is not a very satisfactory therapeutic or prophylactic measure in chorea, and appears to base it upon the fact that of 23 cases of Sydenham's chorea, there was a recurrence of the disease in eight cases after the operation. One feels like asking, what about the success in the majority of the cases? Fifteen is nearly twice eight. He advises against the removal of the tonsils in the acute stages of chorea. The writer desires to differ strenuously with this opinion, and has had in his own practice within the last year over a dozen cases that positively refute the statement that there is grave danger. Quite to the contrary, he has had to date universal success in such cases.

Writing editorially upon this article the *Journal of the American Medical Association* says, "Despite the many uncertainties and unsolved problems which still exist, however, Crowe and his collaborators state that their records tend to support the evidence of Billings and others in regard to the importance of focal infections in many of the general disorders seen by the internist, the pediatrician, and the general surgeon." Notwithstanding the statement of Billings given above, Rosenow[22] has studied the bacteria obtained from joint exudate and rheumatic nodes in acute rheumatism, and found organisms corresponding closely to the

micrococcus Rheumaticus in seven out of eight cases. He claims certain strains of bacteria assume different cultural and morphological characteristics under certain conditions and environment. He classifies the streptococci as follows, their violence increasing in the order named: Hæmolytic Streptococcus, Streptococcus Rheumaticus, Streptococcus Viridans, Pneumococcus, and the Steptococcus Mucosus. The hemolytic variety has an affinity for joint structures, while the viridans has an affinity for heart valves. No other reason seems as plausible for the prevalence of rheumatic fever in children as the local infection in the throat, mouth and nose.

A short time ago a patient who had had repeated attacks of arthritis some years ago, but who had been free from an attack for a long time, suffered with a tonsillitis that ended in peritonsillar abscess requiring operation for evacuation of the pus. Relief to the throat was immediate upon release of the pus, but the system had taken part in the pyæmia evidently, for he had an attack of arthritis before his convalescence from the quinsy. The writer believes he would have been spared this last attack, both of tonsillitis and rheumatism, if he had had his tonsils removed when advised to do so, some time ago.

The writer is a firm believer that neuralgias, neuritis and most myalgias are all members of the rheumatic family. And with that as a basis for his reasoning, has repeatedly advised tonsillec-

tomy when no other source of infection could be ascertained. And the tonsil may look innocent enough. A tonsil may contain foci which are causing the most serious systemic infection, where a careful examination may fail to discover anything which would throw suspicion upon these structures, and where the infection in the tonsil can be disclosed only after the tonsils are removed. The absence of an acute attack of sore throat at the time when systemic disease developed in no way excludes the tonsils as the possible focus for the trouble. The history of attacks of tonsillitis in previous years should always throw suspicion on the tonsils as the possible seat of chronic latent foci, and when the systemic condition is serious enough to justify the procedure, the faucial tonsils should be enucleated unless foci of infection can be detected elsewhere. In searching for the cause of an obscure systemic disease, and everything done to eliminate the source, one may be misled by the statement of the patient that they have never had tonsillitis or a sore throat. And yet an examination of the tonsils will disclose the presence of pus that can be expressed quite easily. The tonsil may or may not be enlarged. When it is distinctly enlarged the evidence of chronic infection is, perhaps, more readily recognized than when the tonsil is shrunken. Dillingham, quoted above, says: "In a case suffering from a chronic systemic infection, the faucial tonsil should always be under suspicion as the most frequent source of the trouble,

and in cases where no other foci can be detected, one should not hesitate to consider the removal of the tonsil, provided the systemic infection is severe enough to warrant the operation, even in the case where the history of the patient and the examination of the tonsil discloses no positive evidence of the tonsillar origin of the trouble." The writer wishes to heartily endorse these sentiments. As shown by the case of the physician and many others, especially the type mentioned when the claim was made that neuralgia was of the rheumatic family. Cases have been operated upon by me after internists have eliminated all other possible causes for the systemic disturbance; and while the tonsils in some cases have not been inflamed (some never having had an attack of tonsilitis), and in some cases were not even able to be seen between the pillars, even with counter pressure externally on the neck, were found, when removed, to have been foul-smelling beds of pus of a cheesy consistency; and, best of all, their removal has given relief and cure to the various pains throughout the system. If one is uncertain, it is no crime to remove the tonsils as one more possible source of infection removed. Another reason is, because with properly carried out technique there is less danger and inconvenience to the patient than accompanies almost any other procedure (surely less for the great gain that may be accomplished), and without losing or interfering with some functioning structure. The tonsils are only one of the

many portals through which infection may enter. But it is one of the easiest to close. So even an experimental operation may be justifiable in serious cases.

I have in mind a case where, after a thorough eliminative diagnosis had been made, the patient had been referred to me to find if the tonsils were the possible source of a most persistent refractory neuritis in the shoulder and arm. No inflammation of the tonsils could be made out, nor could one justly accuse those two very small, innocent-looking glands, that had never given their possessor even so much as a suggestion that she owned them, of being the cause of her trouble, even through the greatest stretch of the surgeon's imagination. The patient persisted that the physician had eliminated all causes but that one, and she proposed to have that one eliminated. Operation was performed. Tonsils were not larger than the end of your finger when removed, but during the removal the operating room was filled with the odor one gets when the abdomen is opened upon a ruptured appendix. Two weeks from the operation there was no shoulder or arm pain, and there has been none since. Many more cases of similar character could be cited. So the writer feels he should be pardoned if he appears to take too firm a stand upon the platform that says, "The Teeth and Tonsils *do* play an important role in Arthritis." And, if not pardoned, is willing to take punishment for saying he thinks they play the *leading* role. A long and careful tabulation by the writer has been made

of the cases treated by or through him by dental and tonsillar treatment, showing the condition of the patients, both general and local, before and after this treatment. It is lengthy, and would cover many pages with tables, the persual of which would tend to no good offices more than can be obtained through the statement of the observer as to what his findings are from the series and what conclusions he draws therefrom. Those conclusions are in accord with the findings of Billings, Rosenow, Vanderhoof,[24] who although only describing six cases in his paper, reports on 23 in which the tonsils were examined at the laboratory post operative; with Schraeder[25] in his clear-cut, well-substantiated claim of tooth origin for many infections; with Gibbes[26] in his demonstration that the X-Ray is an aid in determining the dental path of infection; with Lesemann,[27] who says in his conclusion, "Removing the tonsils and making vaccines from the contained bacteria in such diseases as rheumatism, endocarditis, arthritis, some cases of neuralgia and nephritis, is a *duty* when other treatment fails"; with Osmond[28] and his conclusions following observations made upon cases diagnosed through X-Ray aid; with Gearhart,[29] Crane Reede and Barnes in their "known facts regarding the habits of certain types of micro-organisms that give important evidence respecting their tissue affinities"; with Shuman[30] in his very practical talk to his general practitioner confreres when he requests them to be on guard to observe

the focal infections through the teeth and tonsils in their systemic diseases; with Higginbotham,[31] whose vigorous, fearless article is well worth the time to read it; and with all progressive men who fear not to travel toward the light. An evidence of Higginbotham's courage may be had from the following excerpt from his article referred to above:

"Tradition still controls our dealing with the acutely inflamed tonsil: we cling to ancestral customs, forgetting that a surgical principle must apply to all parts of the body. Can it be said that the antiquated treatment of the inflamed appendix or carbuncle is less efficient than the treatment we still give the inflamed tonsil? If the medical treatment of tonsillitis is right, the surgical treatment of appendicitis is wrong: a scientific principle cannot be shifted to suit conditions.

"A few decades back no one understood the complications of appendicitis; to-day this is common knowledge. To-day, too, the sequelæ of tonsillitis are well known, but no consistent effort is made to prevent them. The conscientious abdominal surgeon removed the appendix early in the first attack in the same way the conscientious throat surgeon will come to remove the tonsils. Waiting to operate the appendix in the interim exposes the patient to subphrenic abscess and general peritonitis; waiting to operate the tonsil in the interim exposes the patient to arthritis, nephritis and endocarditis. The treatment for the appendix is the treatment for the tonsil."

And the following which is too good to quote. Complete enjoyment can be had only by getting it direct as published in the *Journal of the American Medical Association* for March 24, 1917.

"Current Reviews Regarding the Tonsils and Their Surgical Removal.

"To the Editor: Your editorial on this subject (the *Journal*, March 17, 1917, page 851) is at least amusing, if not scientific. Experience is of more value than theory; therefore, if you wish to discuss a subject scientifically, you should place yourself in a position to see clinical results. Consequently come to western Kansas where 'inflamed tonsils' are removed daily for the cure of arthritis, nephritis, endocarditis and the prevention and cure of otitis media and its complications, as well as the 'tonsillitis.' Come out where we treat 'diphtheritic tonsillitis' by removing the foci of infection without administering 'antitoxins.'

"Thomas Higginbotham, M. D.,
"Hutchinson, Kansas."

There seems to be a preponderance of evidence on the side of those who claim the teeth and tonsils play an important role in the production of Arthritis.

The most ardent advocates do not claim all cases of rheumatism have their origin through these ports of entry, but claim to have shown a great number of them do come from that source.

The writer is of that goodly company and so leaves his case before you.

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